INVITED COMMENTARY

Commentary on 'Is Hypovitaminosis D Associated with Abdominal Aortic Aneurysm, and is there a Dose Response Relationship?'

M. Björck *

Department of Surgical Sciences, Uppsala University, Uppsala, Sweden

The authors report an interesting finding of potential importance to understand the epidemiology and pathophysiology of AAA.[1] Not only was hypovitaminosis D associated with prevalence of AAA in a population based screening study, but it was also associated with a wider aorta among those considered healthy. The authors have performed an important investigation.

During the last decades epidemiological investigations were performed in Sweden, that indirectly support the findings of Wong et al. The highest prevalence of AAA ever reported in a population based cohort is from northern Sweden,[2] where sunshine is scarce during half of the year, creating seasonal hypovitaminosis D. Among men age 65–75 the prevalence of AAA (defined as $\geq$30 mm) was 16.9%, women in the same age had an AAA in 3.5%. A recent publication confirmed that there is a higher incidence of AAA repair in the northern region.[3]

As the authors acknowledge themselves there are a number of possible confounders, however, and the finding could indeed represent an epiphenomenon. Multivariable models were adjusted for age, smoking, cardiovascular disease, hypertension, diabetes, dyslipidemia, body mass index (BMI) and serum creatinine, but there are other potential factors that may affect vitamin D levels. Physical activity, and in particular outdoor activities, may be of importance. A recent large cohort study showed that abdominal adiposity was an independent risk factor for AAA, but BMI was not.[4] In a report from the Life-Line Screening registry,[5] with information from 3.1 million screened individuals, BMI $>$ 25, was somewhat more common among those with AAA compared to those without AAA (73% vs 67%), but there was no data on waist circumference. Those without AAA had exercise more than once a week more often than those with AAA (56 vs 48%), and they had fruit and vegetables more than three times per week more often (56 vs 41%). Exercise and diet affect vitamin D levels.

Furthermore, there is a possibility that the selection mechanisms that took place during the process when only 4233 of the population of 49 801 elderly men were studied, could have influenced the results. Nevertheless, the findings are thought provoking and will either be confirmed or challenged in future investigations. AAA has a complex pathophysiology, both environmental and genetic factors play important roles. Although the most important factor seems to be smoking, a recent investigation suggested that 71% of the prevalence was explained by smoking habits,[6] there is definitely a place for other factors, and maybe hypovitaminosis D is one of those?

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* Tel.: +46 18 6114608.

E-mail address: martin@bjorck.pp.se (M. Björck).

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